present check lists, but is related to *scæpiolus* Bdvl, of which I think it may be a variety.

28. *Lycæna erymus* is given in the check lists incorrectly as a synonym of *icarioides* Bdvl.

29. *Lycæna polyphemus* is a synonym of *mertila* Edwards 1866 as before mentioned.

30. *Lycæna evius* does not fit very happily as a variety of *pheres* Bdvl. as now listed. Its relationship I have not tried to work out.

31. *Lycæna nestos* is a synonym of *podarce* Felder 1865.

32. *Lycæna phileros* is a good species.

33. *Lycæna rhæa* is the insect until now generally called *sagittigera* Felder. It is a synonym of *piasus* Bdvl. 1852, as I remarked before.

34. *Lycæna suasa* is a synonym of *fuliginosa* Edwards 1861.

I have tried in working out the identity of the Boisduval material to confine myself to the statement of the facts. I have made my identifications from liberal series in most cases and have made my comparisons in daylight, having the assistance of Mr. F. E. Watson in checking comparisons. I am sure any one else with a liberal supply of material at command would reach like results. Mr. Oberthür has certainly rendered a very great service to American students and to those in charge of our public collections by figuring the types of Jean Alphonse Boisduval.

ANTS COLLECTED BY W. M. MANN IN THE STATE OF HIDALGO, MEXICO.[1]

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During the spring and summer of 1913, Mr. M. W. Mann, of the Bussey Institution, was able, through the kindness of Mr. B. Preston Clark, to make an extensive collection of insects in the state of Hidalgo, Mexico. Considerable attention was devoted to the ants and myrmecophiles, as no one seems to have collected these in Hidalgo, though this state is at no great distance from the Mexican capitol. At any rate, I fail to find a single ant cited from Hidalgo in

[1] Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 74.

Forel's volume on the Formicidæ in the "Biologia Centrali-Americana." Hence it is not surprising that Mr. Mann's collection should prove to be of unusual interest. All of the specimens were taken at altitudes above 7,000 ft., as will be seen from the following brief notes on the localities in which he collected:

Pachuca. The capitol of the State of Hidalgo, at an altitude of 8,000 ft., situated among low hills, on the slopes of which, in the immediate vicinity of the town, many specimens were taken. The territory is arid, with abundant cacti; in the hollows there are many pepper trees (*Schinus molle*).

Guerrero Mill. This locality is cited for ants taken within a radius of a couple of miles of an ore mill situated on the eastern slope of the high mountain range east of Pachuca. The altitude of the territory over which collections were made, varies from 8,500–9,000 ft. The country is wooded, with oaks and pines predominating. In many of the deeper canyons moisture prevails throughout the year, but the hillsides at times become very dry.

San Miguel. This locality denotes a stretch of semi-plain country, stretching from Velasco (about two miles below Guerrero Mill and at an altitude of about 8,000 ft.) to the eastward. The little village of San Miguel at an altitude of about 7,000 ft. is approximately in the center of the country in which the collections were made. In general the land is rolling, with large, level, semi-arid tracts. A barranca opens into the plain directly from the tropics of the "tierra caliente."

The collection is very interesting in the following respects:

1. Though made at rather high elevations, it comprises a long series of new forms, *e. g.*, a new legionary ant (*Eciton manni* n. sp.), a new *Monomorium* (*M. cyancum* n. subsp.), with metallic blue workers, a new *Pheidole* of the subgenus *Allopheidole* (*Ph. centeatl* n. sp.), with polymorphic workers, a new *Stenamma* (*S. manni* n. sp.), closely allied to the other species of this genus, hitherto known only from subboreal America and Eurasia, a new *Myrmica* (*M. mexicana n. sp.*), related to *M. punctiventris* Roger of the Atlantic States and *M. sulcinodis* Nyl. of Europe, a singular *Leptothorax* (*L. manni* n. sp.), two interesting *Formicæ* (*Formica subcyanea* n. sp. and *nahua* n. var.), a new amazon ant (*Polyergus montezuma* n. var.), a dark variety of one of the honey ants (*Myrmecocystus melanoticus* n. sp.), a new *Lasius* of the subgenus *Acanthomyops* (*L. mexicanus* n. subsp.), and a new *Camponotus, C. pellarius* n. sp. allied to *C. chilensis.*

2. Thirty-four of the thirty-nine forms enumerated in this paper, or 87 per cent. nest under stones. The exceptions are the two species of *Myrmecocystus* and *Pogonomyrmex barbatus,* which make crater nests in the ground, *Pseudomyrma flavidula,* which nests in hollow twigs and *Camponotus nitidus,* which lives in wood.

3. Equally striking is the pronounced melanism, which in a large proportion of Hidalgo ants is not only very apparent in the males and females, but extends also to the workers. This phenomenon is observable in fully twenty-nine, or 74 per cent. of the forms. The only ones in which a decided increase of pigmentation is not apparent in the worker phase, are *Odontomachus clarus, Ponera inexorata, Eciton cœcum, Pseudomyrma, flavidula, Solenopsis minutissima, Pogonomyrmex barbatus, Lasius mexicanus* and *Formica nahua.* In four of these, the species of *Ponera, Eciton, Solenopsis* and *Lasius,* the worker, as shown by the vestigial eyes and pale coloration, is hypogæic in habit. The absence of melanism in the few remaining species is not so readily explained, but is also probably associated with peculiarities of habit.

Undoubtedly this pronounced melanism in the ants of Hidalgo is due to the intensive and protracted insolation to which they are subjected at the high altitudes in which they live. The same peculiarity has been noticed in alpine insects in Mexico and other parts of the world, in mollusks, birds and mammals. Herrera and Lope call special attention to it in their voluminous work on the plants and animals of the Mexican plateau.[2]

It is interesting to note that Mr. Mann, who is preparing a paper on the Hidalgo myrmecophiles notices a high degree of melanism in some of these, especially in a species of *Xenodusa* (*X. sharpi*) and in two other Staphylinids of the genera *Dinardilla* and *Apteronina,* which live with *Liometopum apiculatum,* itself a melanistic, subalpine species.

4. Still another peculiarity, which has impressed me while working on the Hidalgo ants, is the great length of the wings in the females, especially when these have large heavy bodies, as in the genera *Pheidole, Lasius, Camponotuus,* etc. Of course nearly all heavy bodied female ants have long wings, to facilitate the nuptial flight, which not only serves to unite the sexes from different nests, but is of very great

[2] Herrera, A. L., and D. Vergara Lope, La Vie sur les Hauts Plateaux. Mexico, I. Escalante, 1899, 790 pp., 111 plates, 19 tables.

importance in distributing the species over considerable land areas. Now comparison of specimens of closely allied species or of the same species from high altitudes and sea-level shows that the mountain forms have distinctly longer wings. To take only one common example, females of *Lasius niger L.* var. *americanus* Emery from Wisconsin and Illinois have the fore wings only 7.5–8.5 mm. long, whereas these appendages in females of the same size and weight from altitudes of 7,000–8,000 ft. in Colorado measure 9.5–10.5 mm. This enlargement of the wing membranes in mountain ants, which I shall consider in more detail in a later publication, is most readily explained as an adaptation to flight in a more rarified atmosphere. It seems not to have been observed in other insects, probably because the enlargement is slight, amounting only to one or two millimeters or to a fraction of a millimeter. One would expect the rarified atmosphere of great elevations also to have the reverse effect on certain heavy bodied insects and to lead to the suppression of flight and its organs altogether. This seems to be actually the case in some alpine beetles, as has been observed by several authors. One might be tempted to explain the aptery of two of the Hidalgo ants (*Monomorium cyaneum* and *M. compressum*) as the result of such an adaptation, were it not that such females occur in several species of this genus (*e. g., M. ebeninum* Forel and *M. floricola* Jerdon.) that live only at low altitudes in tropical or subtropical countries.

Family **FORMICIDÆ.**

Subfamily PONERINÆ.

1. Ponera inexorata Wheeler.

A single deälated female from San Miguel.

2. Ponera trigona Mayr var. opacior Forel.

Three workers from Guerrero Mill.

3. Odontomachus hæmatoda L. subsp. clarus Roger.

Numerous workers, a deälated female and a male found nesting in the soil under stones at San Miguel.

Subfamily DORYLINÆ.

4. Eciton cœcum Latr.

Numerous workers and males from Guerrero Mill. The latter were taken at lights.

5. Eciton (Acamatus) sumichrasti Norton.

Many workers from several colonies at San Miguel, Pachuca and Guerrero Mill. One large colony was occupying a temporary nest in a bunch of dead cactus.

6. Eciton (Acamatus) melanocephalum Emery subsp. xipe new subspecies.

Worker.—Length 3–5.5 mm.

Differing from the typical *melanocephalum* only in the following characters: The petiole is nearly twice as long as broad, instead of only slightly longer than broad, the thorax and petiole are dark brownish red, instead of light ferruginous red and the head, except the clypeus, the postpetiole and gaster are black, instead of piceous.

Numerous specimens were taken at San Miguel from a single colony in the act of plundering a nest of *Pheidole vasliti* Pergande var. *acolhua* var. nov.

7. Eciton (Acamatus) manni new species.

Worker.—Length 3–4.5 mm.

Allied to *E. melanocephalum*. Head somewhat longer than broad, broader in front than behind, with broadly and feebly excised posterior border and angular posterior corners. Eyes very small and indistinct. Mandibles in the largest workers with oblique blades furnished with two or three small, widely separated teeth, in the small workers toothless and not oblique. Antennæ stout, the scapes only about three-fifths as long as the head. Thorax shaped as in *melanocephalum*, long, narrow, laterally compressed; pronotum with a transverse carina anteriorly, pro- and mesonotum feebly convex above and twice as long as the epinotum, the base of which is straight, horizontal and lower than the mesonotum, separated from it by a shallow but distinct impression, and scarcely longer than the declivity which is slightly concave. Petiole in profile longer than high, evenly convex above, with a small anteroventral tooth; seen from above it is fully twice as long as broad, with parallel sides; postpetiole slightly broader and shorter than the petiole, a little longer than broad, broader behind than in front, with rather straight sides, convex upper surface and a small, blunt, anteroventral tooth. Gaster and legs of the usual shape. Claws simple.

Mandibles subopaque, finely striate and coarsely punctate; head shining, its upper surface in large workers coarsely and sparsely punctate, its lateral and gular surfaces glabrous. Thorax subopaque, finely and densely punctate-rugulose, except the sides of the pronotum, which are very shining and either smooth or very superficially punctate. In the largest workers the inferior meso- and metapleuræ are also somewhat shining and the same is true of the pronotum in all specimens, although this region is as deeply and densely punctate-rugulose as the meso- and epinotum. Petiole finely punctate-rugulose, upper surface of node slightly shining; postpetiole smoother and more shining,

except its ventral surface, which is opaque and finely punctate. Gaster and legs smooth and shining, with small scattered, piligerous punctures.

Hairs pale yellowish, erect, unequal in length, moderately long and abundant, covering the whole body and appendages.

Head and gaster black, front of head and remainder of body dark red; mandibles, middle portions of antennal scapes and of the femora and tibiæ darker and almost black, posterior borders of gastric segments reddish.

Described from several specimens taken from a temporary nest under a stone at Guerrero Mill. This species is readily distinguished from *melanocephalum* by its much shorter antennal scapes, the coarse puctuation of the dorsal surface of the head in the large worker, the longer petiole and smooth sides of the pronotum in all the workers.

Subfamily MYRMICINÆ.

8. Pseudomyrma flavidula F. Smith.

Workers, males and winged females taken from a colony nesting in a grass-culm at San Miguel. These belong to the larger, typical form of the species.

9. Monomorium minimum Buckley.

Several workers and deälated females from Guerrero Mill agree very closely with Texan specimens of this form, which should be regarded as a distinct species and not as a variety of *minutum* Mayr. I find that the teeth on the clypeus and the ridges into which they are continued, are much more prominent in both the females and workers of *minimum* than they are in topotypes of *minutum* from Venice, Italy. Moreover the famale of *minimum* is winged and has the head subopaque, finely longitudinally striated in front and coarsely punctate above, whereas the corresponding phase of *minutum* is apterous and its head is shorter, more shining, more feebly striated and its punctures much smaller. The thorax of the female *minutum* is distinctly smaller and more slender and the petiolar and postpetiolar nodes much narrower and of a different shape, the petiole being epedunculate, whereas it is distinctly pedunculate in *minimum*. The peduncle of the petiole is very short also in the worker of *minimum*. Besides the two following subspecies what I have called the subsp. *ergatogyna* from Santa Catalina Island, Cal., should also be attached to *minimum* and not to *minutum*. Both of these species differ from *carbonarium* F. Smith and its subsp. *ebeninum*

Forel in the shape of the epinotum, as Forel has shown. In the two former species it is sloping and rounded and not cuboidal. *Minutum* and *minimum* nest in the ground under stones, *carbonarium* and *ebeninum* in the cavities of plants (twigs, under bark, between the overlapping leaves of Tillandsias, etc.).

10. Monomorium minimum subsp. cyaneum new subspecies.

Worker.—Differing from the worker of the typical form in coloration, the body being deep, metallic blue; the antennæ and legs black, with the bases of the funiculi, mandibles, mouthparts, tarsi and articulations of the legs piceous.

Female.—Apterous, but with the thorax shaped very much as in the typical *minimum* though distinctly smaller and more slender. Head more shining above. Body and legs black, the latter with yellow articulations and tarsi.

Described from numerous workers and females taken at Guerrero Mill under stones in rather damp places on the sides of canyons.

11. Monomorium minimum subsp. compressum new subspecies.

Worker.—Indistinguishable from that of the typical *minimum*.

Female.—Smaller, less than 3 mm. long; apterous and more worker-like in the structure of the thorax than the subsp. *cyaneum* and *ergatogyna* Wheeler, the mesonotum and scutellum very small. Moreover the thorax is distinctly constricted both dorsally and laterally just in front of the epinotum. The mesoëpinotal suture is deep, the epinotum rather swollen, longitudinally impressed in the middle and in profile shaped like that of the worker. Head rather short, more shining than in the typical *minimum* and the punctures smaller than in this form and in *cyaneum*; petiole narrower. Pilosity white, much shorter and very much sparser.

Described from four females and several workers taken at San Miguel beneath a stone. This may be a distinct species, but its exact position can hardly be determined till its male and those of the allied forms have been carefully studied.

12. Solenopsis picea Emery.

A dozen workers taken from nests under stones at Guerrero Mill are referable to this form, which was originally described from Costa Rica.

13. Solenopsis minutissima Emery.

Several workers from a rather large colony found nesting under a stone at San Miguel agree very closely with some Argentine cotypes of this species given me by Dr. F. Silvestri. One of the workers is larger and has larger, distinctly pigmented eyes, but is probably

an unusual specimen. Three deälated females accompanying these workers measure a little more than 3 mm. and are rich chestnut brown, with yellow legs and antennæ. The upper surface of the head and anterior portion of the mesonotum are coarsely and sparsely punctate. The petiolar and postpeliolar nodes are of subequal width, but the latter is proportionally shorter and fully twice as broad as long. The postpetiole bears a small but prominent tooth on its ventral surface. The gaster is long and narrow.

14. Cremastogaster lineolata Say subsp. opaca Mayr.

Several workers taken from colonies nesting under large flat stones at San Miguel agree very closely with Mayr's description of the typical form of this subspecies. They are very dark in color and lack the denticles which occur on the petiole in *dentinodis* Forel, a form which I took many years ago at Queretaro, Mexico. Several males, accompanying the workers from San Miguel, measure about 3.5 mm. They closely resemble the male of the typical *lineolata* of the Northern States in form, sculpture and pilosity, but are somewhat darker.

15. Pheidole chalca new species.

Soldier.—Length 2.5–3 mm.

Allied to *Ph. floridana* Emery. Head subrectangular, a little longer than broad, with straight, parallel sides and rounded posterior lobes, separated by a deep excision, and with a distinct median dorsal groove continued forward as far as the frontal area. Mandibles convex, with two blunt apical teeth. Clypeus concave and carinate in the middle, its anterior border feebly notched in the middle. Eyes rather large, flat, at the anterior third of the head. Frontal area distinct. Frontal carinæ rather long, forming the mesial borders of very feeble but distinct impressions for the antennal scapes. Antennæ slender, scapes reaching only a short distance behind the eyes; funicular joints 2–8 small, not longer than broad. Thorax robust, shorter than the head and through the humeri more than half as broad. In profile the pro- and mesonotum form a single convex mass, the mesonotum angular and falling rather abruptly behind to the epinotum which is small and has a subequal base and declivity, the latter sloping, the spines small, acute, suberect, longer than broad at their bases. Petiole nearly twice as long as broad, a little broader behind than in front, with concave sides; in profile with both anterior and posterior slopes of the node concave, the node transverse and with rather sharp, feebly notched superior border. Postpetiole nearly 1½ times as broad as the petiole, distinctly broader than long, with its sides in the middle distinctly angular but not conulate. Gaster much smaller than the head.

Whole body shining; mandibles sparsely but not coarsely punctate. Sides

of the clypeus and anterior ¾ of head above, except the flattened areas for the scapes, longitudinally rugose. Epinotum and pleuræ obscurely rugulose; sides of epinotum and sides and ventral surface of petiole densely punctate. Remainder of thorax and gaster with minute, sparse, piligerous punctures.

Hairs coarse, yellow, moderately long, suberect on the body, shorter and subappressed on the scapes and legs.

Brownish yellow; borders of mandibles, clypeus, gaster, except its base and tip, and head, except the cheeks and posterior corners, brown. In some specimens the upper surface of the thorax also is infuscated.

Worker.—Length 1.5–2 mm.

Head subrectangular, excluding the mandibles as broad as long, with the posterior border feebly excised in the middle. Eyes just in front of the median transverse diameter of the head. Mandibles with about 5 denticles. Antennal scapes reaching the posterior border of the head. Clypeus convex, its anterior border rounded and entire. Thorax like that of the soldier, but the pro- and mesonotum less robust, less convex and more evenly rounded in profile and the epinotal spines smaller. Petiole with entire, rather conical node; postpetiole a little broader than long, broader behind than in front, its sides not angulate.

Head thorax and pedicel covered with small, dense punctures and the front of the head also delicately longitudinally rugulose so that it is subopaque. The thorax and pericel, too, are subopaque, except the upper surface of the pronotum and the nodes which are more or less shining.

Pilosity much as in the soldier.

Color brownish yellow, dorsal surface of the head, thorax and gaster often a little darker.

Female.—Length 4.5–5 mm.

Head subrectangular, as broad as long, a little broader behind than in front, the posterior border nearly straight. Thorax seen from above elliptical, but narrowed in the epinotal region, which is sloping in profile, with stout, short, pointed teeth. Petiolar node emarginate. Postpetiole nearly twice as broad as long, its sides in the middle produced as blunt conules. Gaster broadly elliptical. Wings very long (7.5 mm.).

Mandibles rather shining, coarsely striato-punctate; clypeus and head subopaque, longitudinally rugose and reticulate even on the depressions for the antennal scapes. Pronotum opaque and rugulose. Remainder of thorax shining, but with the sides and dorsal surface coarsely punctate and striate. Petiole and postpetiole less shining than the gaster, with coarse piligerous punctures. Gaster sparsely and minutely punctate, with large punctures on the extreme base of the first segment.

Hairs longer and more abundant than in the soldier.

Dark piceous brown or black; mandibles, except their borders, clypeus, cheeks, legs and bases and tips of antennal funiculi brownish yellow, the middle portions of the tibiæ and femora darker. Wings gray, with pale brown veins and stigma.

Described from numerous specimens taken from many colonies of

rather small size nesting beneath stones at Guerrero Mill. This species is evidently closely related to *Ph. floridana,* but the head of the soldier is larger, less flattened, the thorax is stouter, with smaller epinotal spines, the postpetiole is decidedly narrower and the sculpture is very different both in the soldier and worker. The worker of *chalca,* moreover, is much more robust than that of *floridana* and it various subspecies and varieties, and the pilosity is very different, being like that of the soldier and not consisting of very sparse, feebly clavate hairs on the body.

16. Pheidole ceres Wheeler subsp. tepaneca new subspecies.

Soldier.—Differing from the typical form from Colorado in the darker color of the head, thorax and gaster, which are black and not dark brown, and in the sculpture of the head and thorax, especially the posterior lobes of the former and the pronotum, which are more glabrous and shining. The rugæ on the anterior part of the head are sharper and more nearly straight and the interrugal spaces are finely and densely punctate and much less distinctly reticulate.

Worker and female differing from those of the typical *ceres* also in their darker color and more shining surface.

A few soldiers and females and many workers of this harvesting ant were taken from small colonies under stones at Guerrero Mill.

17. Pheidole (Allopheidole) centeotl new species.

Soldier.—Length 4 mm.

Allied to *Ph. macclendoni* Wheeler. Head very large, including the mandibles fully twice as long as the thorax, longer than broad, rather flat, especially behind, as broad in front as behind, with straight sides and rounded posterior lobes, separated by a deep angular excision and with a pronounced middorsal groove continued forward to the frontal area. Eyes small, rather flat, at the anterior fourth of the head. Mandibles convex, with two blunt apical teeth. Clypeus very short, carinate, with the posterior margin deeply impressed and the anterior margin narrowly notched in the middle. Frontal area small, triangular, rather deeply impressed, with a median carinula. Frontal carinæ short, diverging posteriorly. Antennæ small and slender; scapes reaching only a short distance behind the eyes, terete, slightly curved at the base, funicular joints 2–8 as long as broad. Thorax small, less than half as broad as the head, with bluntly rounded humeri. In profile the pro- and mesonotum form a single convex mass, the mesonotum having a plain surface, without transverse constriction or welt, sloping to the epinotum, which has a subequal base and declivity, the former horizontal, the latter very sloping, armed with two small, erect teeth, which are as long as broad at the base. Petiole from above fully twice as long as broad, with subparallel sides; in profile the node is moderately

high and transverse, with long, concave anterior and short, abrupt, posterior slope, its border entire and evenly rounded. Postpetiole twice as broad as the petiole, decidedly broader than long, with each side produced in the middle as a distinct, pointed conule. Gaster elliptical, much smaller than the head. Legs rather long and slender.

Body shining; clypeus and anterior half of head rather coarsely longitudinally rugose, the spaces between the rugæ feebly reticulate. Mandibles and posterior half of head with scattered, piligerous punctures. Thorax, pedicel and gaster also with similar punctures, but the pleuræ irregularly rugulose and the epinotum subopaque, densely and superficially punctate.

Hairs yellowish, erect or suberect, delicate, moderately long and abundant, covering the body, scapes and legs.

Ferruginous; borders of mandibles, sides of the clypeus, the median longitudinal groove of the head, the mesonotum, epinotum, pedicel and gaster dark brown or blackish.

Mediæ.—Length 2.5–3.5 mm.

Representing a series of intermediates between the soldier and worker in the size and sculpture of the head and in the size and shape of the body.

Worker.—Length 2–2.5 mm.

Head, excluding the mandibles, subrectangular, as broad as long. Mandibles with 5 or 6 denticles. Clypeus rather convex, with entire anterior border. Eyes just in front of the middle of the head, moderately convex. Antennal scapes scarcely surpassing the posterior corners of the head. Thorax like that of the soldier. Postpetiole nearly as long as broad, its sides in the middle distinctly angular, but not produced or conulate.

Shining; anterior half of head and the whole thorax subopaque and densely punctate, the cheeks and front also longitudinally rugose; pronotum smooth and shining above.

Pilosity similar to that of the soldier but shorter.

Black; antennæ and legs piceous; mandibles, bases of funiculi, tarsi and articulations of legs yellowish.

Female.—Length 5.5–6 mm.

Head rectangular, not longer than broad. Eyes rather large and convex. Thorax of the usual shape, with flat mesonotum and scutellum; epinotum sloping, without distinct base and declivity, armed with two short, acute teeth, which are very broad at their bases. Petiole and postpetiole like those of the soldier. Gaster broadly elliptical. Wings very long (10 mm.).

Shining and with sparse, minute, piligerous punctures; mandibles more coarsely punctate; sides of clypeus and anterior ¾ of head subopaque, longitudinally rugose.

Pilosity much as in the soldier but more appressed on the thorax and gaster.

Dark brown; mandibles, except their borders, which are black, clypeus, cheeks, pronotum, pleuræ, antennæ and legs reddish or ferruginous. Wings gray, with pale brown veins and stigma.

Described from many specimens taken from a number of colonies nesting beneath stones on the hill sides at Guerrero Mill. This species differs from *Ph. macclendoni* in its smaller stature and in the head of the soldier, which in the latter species is proportionally shorter, much more convex above and very differently sculptured. I have named it after the Aztec Ceres, or maize goddess, as it is, in all probability, a harvesting species. Owing to the structure of the head and the polymorphism of the worker phase it may be referred to Forel's subgenus *Allopheidole,* which also includes *Ph. macclendoni, tepicana* Pergande and *kingi* Ern. André, the last being the type. *Ph. vasliti* Perg., which Forel also assigned to this subgenus must evidently be excluded. For reasons given below I make it the type of a new subgenus, *Cardiopheidole.* Both of these subgenera, however, seem to be rather artificial and therefore of doubtful value.

18. Pheidole (Cardiopheidole) vasliti Pergande var. acolhua new var.

Soldier.—Differing from the typical form and the var. *hirtula* Forel in its darker color, the gaster, pedicel, pleuræ, epinotum and femora, and in some specimens also the remainder of the thorax and the head, dark brown or black in mature specimens, the cheeks sometimes red or yellowish.

Mediæ and worker.—These are also darker than the corresponding phases of the typical form and var. *hirtula,* the mediæ being piceous or blackish, with red mandibles and cheeks, the worker black, with yellowish mandibles and brownish funiculi, tarsi and articulations of the legs.

Female.—Length 8–9 mm.

Head, excluding the mandibles, subrectangular, a little broader than long, a little broader behind than in front. Anterior clypeal border transverse, flattened, deeply emarginate in the middle. Antennal scapes reaching nearly to the posterior corners of the head, flattened and somewhat incrassated and rather strongly curved at the base. Thorax of the usual shape, with broad, flat mesonotum and sloping epinotum, the latter armed with strong, blunt, laterally compressed teeth. Petiole from above concave on the sides, broadest behind through the node, which is transverse, with a sharp border, excised in the middle and with rather straight sides above. Postpetiole seen from above, about twice as broad as long, with broadly rounded anterior border, its sides in the middle projecting as blunt angles. Gaster broadly elliptical, flattened dorsoventrally. Wings very long (9–10 mm.).

Mandibles shining, coarsely and very sparsely punctate. Middle of clypeus and a narrow median line on the head shining, sides of clypeus and remainder of head subopaque, coarsely longitudinally rugose, with reticulate interrugal spaces. Thorax and pedicel subopaque, finely striate and coarsely punctate, middle of the mesonotum, anterior portion of scutellum and gaster shining, covered with scattered piligerous punctures.

Hairs on the body sparse, long, erect; on the legs and scapes shorter, more abundant and more reclinate.

Black; mandibles, except their borders, cheeks, antennal funiculi and legs red; femora darker. Wings gray, with yellow veins and brown stigma.

Male.—Length 5–6 mm.

Head very small; cheeks very short; mandibles minute, bidentate; eyes large, half as long as the sides of the head. Antennæ slender; scapes very short, not longer than the second and succeeding joints of the funiculi, first funicular joint subglobular. Thorax robust, nearly twice as broad as the head; mesonotum convex in front, flattened behind; epinotum with subequal base and declivity and a blunt angular projection on each side in the place of the spine. Petiole like that of the soldier, with sharp, emarginate superior border. Postpetiole subcampanulate, broader behind than in front, with feebly rounded sides. Gaster elliptical. Legs very slender. Wings rather broad.

Head, thorax and pedicel subopaque, densely and finely punctate-regulose. Gaster shining, with minute, sparse, piligerous punctures.

Hairs grayish yellow, erect, long and very abundant on the head, thorax and petiole, much sparser on the gaster, shorter and more appressed on the legs.

Black; mandibles and tarsi, except the first joint, yellowish. Wings colored as in the female.

Described from a large number of specimens taken from many colonies at San Miguel, Pachuca and Guerrero Mill. These colonies are often very populous and nest under stones in open, arid situations. There are also in my collection many specimens of this same variety from Saltillo and Guadalajara, Mexico, taken several years ago by Dr. J. F. McClendon.

Great confusion is apparent in the literature in regard to *Ph. vasliti* and certain other forms described by Pergande as *Ph. subdentata* and *obtusospinosa* and by Santschi as *Ph. arizonica.* As I have on hand a considerable number of specimens referable to these forms, I am able to state that Forel has confounded two very distinct subspecies, one of which was originally described by Pergande from Lower California. The worker of the other was described by Pergande as *subdentata* from Tepic, Mexico, and the corresponding soldier from the same locality was described by the same author as *Ph. obtusospinosa.* Finally Santschi described what is nothing more than a dark variety of *subdentata* from Tucson, Arizona as *Ph. arizonica.* I have been able to reach these conclusions from a study of cotypes of *subdentata* and *obtusospinosa* in my collection and numerous topotypes of *arizonica* collected by myself a few years ago in the Santa Cruz River bed at Tucson, Arizona.

The soldiers of the two subspecies and their varieties may be distinguished by means of the following table:

1. Head of soldier cordate, narrowed anteriorly, with slightly concave cheeks and convex front; mandibles without a deep longitudinal impression at the apex between the two teeth; postpetiole fully twice as broad as long ..... 2.

   Head of soldier less narrowed anteriorly and less convex in the frontal region; cheeks not concave; mandibles with an elongate and rather deep, longitudinal impression at the apex between the two teeth; postpetiole not twice as broad as long ..... 4.

2. Color pale brown or reddish, gaster shining; length 3.8–4.4 mm., *Ph. vasliti* Pergande.

   Color darker; gaster subopaque; pilosity more abundant; length 6–7 mm. 3.

3. Gaster black, head and thorax often dark brown or blackish, var. *acolhua* var. nov.

   Color somewhat lighter ..... var. *hirtula* Forel.

4. Color paler ..... subsp. *subdentata* Pergande.

   Color darker ..... var. *arizonica* Santschi.

The synonomy and distribution of these forms is as follows:

Pheidole vasliti Pergande, Proc. Cala. Acad. Sci. (*2*), V, 1895, p. 883, ♀☿; Forel, Biol. Centr. Amer., 1889–90, p. 65.

Ph. obtusospinosa Forel (*nec Pergande*) Ann. Soc. Ent. Belg. XLV, 1901, p. 130.

Sierra San Lazaro, Lower California (Eisen and Vaslit).

Ph. vasliti var. hirtula Forel, Biol. Centr. Amer. 1889–90, p. 65, ♀☿; Ann. Soc. Ent. Belg. XLV, 1901, p. 130, ♀☿; Wheeler, ibid. p. 202, ♀☿.

Durango (Brinkmann); Queretaro (Wheeler); Zapotlan, Jalisco (C. H. T. Townsend).

Ph. vasliti var. acolhua new var.

State of Hidalgo (W. M. Mann); Saltillo and Guadalajara (J. F. McClendon).

Ph. vasliti subsp. subdentata Pergande.

Ph. subdentata Pergande, Proc. Cala. Acad. Sci. (*2*) V, 1895, p. 888, ☿.
Ph. obtusospinosa Pergande, *Ibid.* p. 889, ♀.

Tepic, Mexico (Eisen and Vaslit); Rio Santiago (J. F. McClendon).

Ph. vasliti subsp. subdentata var. arizonica Santschi.

Ph. arizonica Santschi, Bull. Soc. Ent. Ital. XLI, 1909, p. 3, ♀.

Tucson, Arizona (F. Silvestri); Bed of Santa Cruz River, Tucson (Wheeler); Huachuca Mts., Arizona (Wheeler and W. M. Mann).

Ph. vasliti is certainly much more closely related to the series of forms embracing *Ph. texana* Wheeler, *hyatti* Emery, *crassicornis,* Emery, etc. than to *Ph. kingi, rugifrons,* etc. This latter group is much more closely related to our typically nearctic series of Pheidoles, including *Ph. pilifera* Roger, *vinelandica* Forel, etc. Hence I am unable to follow Forel in including *vasliti* in the subgenus *Allopheidole,* merely because it possesses polymorphic, instead of dimorphic workers. In order to emphasize this conclusion I have placed it in a distinct subgenus.

19. Stenamma manni new species.

Worker.—Length 2.5–3.5 mm.

In the shape of the body very much like *S. westwoodi* Westwood and *brevicorne* Mayr, but the eyes are much larger and the basal joint of the funiculi a little longer and less transverse. Sculpture of the head, thorax and pedicel a little finer and more as in the subsp. *diecki* Emery of the latter species, so that the surface, especially of the pronotum and posterior portion of the head, is somewhat shining. Pilosity much as in the other species of the genus, but the color is very different, being black, with the tarsi, articulations of the legs, the mandibles and tips of the antennæ, dark red.

Female.—Length 4.2 mm.

Closely resembling the worker, except for the usual sexual differences. Wings distinctly infuscated, with the inner branch of the cubital vein arising from the cubital cell a short distance proximal to the cross-vein. The venation is therefore intermediate between that of *S. nearcticum* Mayr and *westwoodi* on the one hand and *brevicorne* on the other, since in the two former species the inner branch of the cubital arises at a point just distal to the cross-vein, whereas in the latter it arises from the middle of the cubital cell. The veins and sitgma are, moreover, dark brown in color, but very pale in *nearcticum* and *brevicorne* and only slightly darker in *westwoodi.*

Described from two females and 13 workers taken from a couple of colonies, which were nesting under large stones in a damp spot in the pine forest on the trail between Real del Monte and El Chico at the summit of the range (10,000 to 11,000 ft.).

20. Pogonomyrmex barbatus F. Smith.

Several workers, three males and a deälated female from Pachuca are referable to this form. The workers measure 5.5–6 mm., and are

distinctly smaller and perhaps a little darker than the workers of the var. *molefaciens* Buckley from Texas, but the male has the head, thorax and node of the petiole black, whereas these parts are reddish yellow like the rest of the body in *molefaciens*. Moreover the wing-veins and stigma are brown and not resin yellow as in the Texan variety. In the female the epinotal spines are as long and slender as in the worker, but in *molefaciens* they are very short and broad at the base. The color of this sex is the same as that of the female *molefaciens*.

At Pachuca *P. barbatus* inhabits large, flat, crater nests about 4 feet in diameter in the open, arid country.

21. Myrmica mexicana new species.

Worker.—Length 3.5–5 mm.

Closely allied to the European *M. sulcinodis* Nyl. Head distinctly longer than broad. Antennal scapes shaped like those of *sulcinodis* or rather of the var. *sulcinodis-scabrinodis* Forel, being a little more sharply bent at the base and in some specimens with a small tooth or ridge at the angle as in some forms of *scabrinodis*. The joint is of nearly uniform thickness throughout. Funiculi with a 3-jointed club, which in some specimens, seems to be indistinctly 4-jointed. Spines of the epinotum straight or very slightly bent downward, somewhat shorter than those of *sulcinodis* and not recurved at their tips. Petiole in profile a little longer than high, shaped as in *sulcinodis*, not pedunculate, its node with subequal declivities, the anterior feebly concave, the posterior feebly convex, both meeting at a rather sharp angle. Postpetiole also as in *sulcinodis*, distinctly higher than long.

Sculpture very coarse and much as in *sulcinodis*, with shining interrugal spaces, but the longitudinal trend of the rugæ is not so distinct on the thorax and pedicel, often vermiculate on the thoracic dorsum and the nodes. Frontal area rugose, opaque.

Hairs like those of *sulcinodis*, but of a gray instead of a yellow tint.

Deep cherry red, legs a little darker; gaster, clypeus and anterior half of head, black. In many specimens the whole head and thorax are dark brown or blackish.

Female (deälated).—Length 5.5 mm.

Closely resembling the worker and differing greatly from the female *sulcinodis* in color, being like the darkest workers, with the upper surface of the thorax and the whole head blackish.

Male.—Length 5–5.5 mm.

Differing from the male of *sulcinodis* in its larger size and in color, the body being deep black, with only the legs and genitalia piceous, and the 4-jointed clubs of the antennæ and tips of the mandibles clear yellow. The wings are more grayish and longer (6 mm.), whereas those of *sulcinodis* measure

less than 5 mm., and the veins and stigma are of a deeper brown tint. The antennal scapes resemble those of *sulcinodis,* being fully half as long as the funiculi, but are somewhat stouter, especially at the base. There are no appreciable differences in pilosity between the two forms. In sculpture the following differences may be noted: the petiolar node is irregularly rugulose-punctate, not longitudinally rugose as in *sulcinodis,* and the postpetiole is also smoother and more shining; the fine rugæ on the head are more irregular and not longitudinal.

Described from many workers and males and three females taken from several colonies at Guerrero Mill. These colonies were found under stones both in the pine woods and on open hill-sides. The status of this form is somewhat doubtful, as one may be inclined to regard it as a subspecies of *sulcinodis.* It is certainly singular that it should be more closely related to the European *sulcinodis* than to any of the nearctic Myrmicas, except *M. punctiventris* Roger. Even *M. brevinodis* Emery, although it has varieties (*subalpina* Wheeler and *sulcinodoides* Emery) that approach the European form in sculpture and color, differs considerably from *sulcinodis* in the antennal scapes of the worker and male. The Mexican form is closely related to *M. punctiventris* of the Eastern States. In the worker of this species, however, the petiole is pedunculate and has a larger antero-ventral tooth, the epinotal spines are shorter, the antennæ are less angularly bent at the base and the gaster is coarsely punctate. The male *punctiventris* is much smaller than that of *mexicana,* but in other respects remarkably similar.

22. Leptothorax manni new species.

Worker.—Length 2–2.2 mm.

Head subrectangular, longer than broad, with broadly rounded posterior border. Mandibles 5-toothed. Clypeus convex, its anterior border very feebly and sinuately emarginate in the middle. Frontal area distinct. Antennæ 12-jointed; scapes reaching very nearly to the posterior border of the head; first funicular joint as long as joints 2–5 together; joints 2–6 a little broader than long, 7 and 8 as long as broad; terminal longer than the two penultimate joints of the 3-jointed club. Thorax flattened above and on the sides, a little narrower behind than in front, not constricted when seen from above and without impressed sutures on the dorsal surface, which, therefore, in profile is perfectly even and nearly straight. Humeri rather prominent, subangular; base and declivity of epinotum in profile subequal, the latter sloping, armed with two small, suberect teeth, which are not longer than broad at their bases. Petiole subpedunculate, seen from above pyriform, broader behind than in

front, about 1½ times as long as broad; in profile the anterior and posterior declivities of the node are subequal, the former straight or very feebly concave, the latter convex. Postpetiole nearly half again as broad as the petiole, broader than long, subrectangular, with rounded anterior corners. Gaster elongate elliptical, with feebly excised anterior border. Femora slightly swollen in the middle.

Mandibles subopaque, coarsely striatopunctate. Cheeks, pleuræ, epinotum, petiole and postpetiole subopaque, finely and densely punctate; cheeks and clypeus also delicately longitudinally rugulose; remainder of body very smooth and shining, finely and very sparsely punctate, especially the posterodorsal portion of the head, the pronotum and the gaster.

Hairs snow white, short, delicate but clavate, sparse and erect on the body; on the appendages very minute, appressed and pointed.

Black; antennæ and legs deep red or piceous, scapes and middle portions of femora and tibiæ darker. In some specimens the tarsi and articulations of the legs are more yellowish.

Female.—Length 3–3.5 mm.

Differing from the worker in the following particulars: Head broader and somewhat more rectangular. Thorax large, subelliptical from above and flattened dorsally, the mesonotum large, the base of the epinotum only half as long as the declivity, which is abrupt and concave. Petiole in profile with wedge-shaped node, its anterior slope short and slightly concave, its posterior slope straight and perpendicular, its superior border rounded and entire. Postpetiole more distinctly rectangular than in the worker, nearly twice as broad as long, very convex above and in front, depressed behind.

Sculpture much as in the worker, but the front of the head longitudinally striated and the nodes of the petiole smoother and more shining.

Pilosity and color as in the worker, except that the hairs on the body are pointed. Wings whitish hyaline, with pale yellow veins and conspicuous brown stigma.

Male.—Length 2 mm.

Head through the eyes as broad as long, semicircular behind. Mandibles small. Antennæ short; scapes only about three times as long as the first funicular joint, which is oval and less than twice as long as broad. Eyes large and prominent. Thorax nearly as broad as long; mesonotum convex; epinotum depressed, sloping and unarmed. Petiole and postpetiole like those of the worker; legs more slender.

Whole head subopaque, densely and finely punctate-rugulose. Remainder of body shining; thorax above finely longitudinally striated.

Hairs very short and sparse, pointed.

Color like that of the worker and female. Veins of wings very pale; stigma as in the female, large, dark brown and conspicuous.

Described from numerous workers and females and a single male taken from nests in the ground beneath stones at El Chico and

Guerrero Mill. This species is most closely related to *L. schmitti* Wheeler of Colorado, but the worker is readily distinguished by its much darker color, shorter head, shorted epinotal spines and very different petiolar node. The new species also bears a superficial resemblance to *L. stolli* Forel, known only from the summit of the Volcan de Agua, in Guatemala (13,000 ft.), but the worker of this species is larger (nearly 3 mm. long), has a longer head and the thorax is more rounded and not prismatic.

Subfamily DOLICHODERINÆ.

23. Tapinoma sessile Say.

Numerous workers and deälated females from San Miguel and Guerrero Mill agree very closely with our large, common North American form of this species.

24. Liometopum apiculatum Mayr.

Many workers and two males from Guerrero Mill and Pachuca.

Subfamily CAMPONOTINÆ.

25. Prenolepis (Nylanderia) vividula Nylander.

Several workers from San Miguel.

26. Prenolepis (Nylanderia) mexicana Forel.

Many workers, three females and a single male from nests in the soil beneath stones at Guerrero Mill. The hitherto undescribed female measures 4.5–5 mm. and is very dark brown, with the funiculi, tarsi and articulations of the legs yellowish and the wings rather deeply infuscated, with brown veins and stigma. The pilosity is similar to that of the worker, but the pubescence is gray, rather long and very dense, covering the whole body so that it is opaque and not shining as in the worker.

27. Lasius (Acanthomyops) interjectus Mayr subsp. mexicanus new subspecies.

Worker.—Differing from the worker of the typical form from the United States in its smaller size (only 2.7–3.3 mm., whereas the typical *interjectus* measures 3.5–4 mm.), and in having the long hairs on the body somewhat finer and less flexuous.

Female.—Not darker than the worker and much smaller than the typical form (length 4.5–5 mm. as compared with 6.5–7 mm. in the true *interjectus*),

with much shorter and fewer erect hairs on the thorax and gaster, with long, distinct pubescence on the mesonotum, which is glabrous and without pubescence in the type. The pubescence on the gaster is also much denser so that it nearly conceals the surface. Wings paler, with paler veins and stigma, and proportionally longer, measuring 7 mm., compared with 7.5 mm. in the typical *interjectus*.

Male.—Also smaller than the corresponding sex of the typical *interjectus* (3 mm.). Body darker and more opaque, much less hairy, but with more abundant pubescence, especially on the upper surface of the epinotum.

Described from numerous workers, females and males, taken from large colonies near Guerrero Mill. These were nesting beneath large stones, especially in pine woods and at high altitudes. The males and females were captured during May, whereas those of the typical *interjectus* are not found in the United States till later in the summer (from the middle of July till the middle of September).

28. Formica microgyna Wheeler subsp. rasilis Wheeler var. nahua Wheeler.

Workers and females from Guerrero Mill.

A full account of this and the three following Formicas is given in my recent "Revision of the Ants of the Genus Formica (Linné) Mayr," Bull. Mus. Comp. Zool., LIII, 1913, pp. 562 *et seq.*

29. Formica subcyanea Wheeler.

Workers, females and males from Guerrero Mill, Velasco, below Real del Monte; El Chico and Pachuca.

30. Formica rufibarbis Fabricius var. gnava Buckley.

Workers, females and males from Guerrero Mill and El Chico.

31. Formica cinerea Mayr var. altipetens Wheeler.

A few workers from Pachuca.

32. Polyergus rufescens Latreille subsp. breviceps Emery var. montezuma new var.

Worker.—Very similar to the typical *breviceps* of Colorado, but differing in coloration, the general tint of the body being slightly darker and more brownish red, with the legs, the posterior border of the first gastric segment broadly and the succeeding segments entirely fuscous. The pilosity is fully as abundant as in the typical *breviceps*, differing in this respect from *mexicanus* Forel, which is scarcely more than a variety, if indeed it be not a synonym of *breviceps*.

Female.—Colored like the worker, but the general tint of the body even darker. Veins and stigma of the wings also darker than in the female *breviceps*.

Male.—Indistinguishable from the male of the typical *breviceps*.

Described from several workers, a male and a female belonging to a single colony which was taken at Pachuca. The slaves in the nest were *Formica subcyanea* Wheeler.

33. Myrmecocystus mexicanus Wesmael var. melanoticus new var.

Worker.—Differing from the typical *mexicanus* in color, the body being deep fuscous, the gaster nearly black, the legs, antennæ, mandibles, clypeus and cheeks yellowish brown.

Male.—Length 5.5 mm.

Like the male of the var. *hortideorum* McCook, but of a different color, the body being black, the genitalia, antennæ and legs deep fuscous or piceous. The wings are longer (6.5 mm., those of *hortideorum* are less than 6 mm.), without a discal cell.

Described from eight workers and a male taken at Pachuca. This is a very distinct variety, as the worker is much darker in color than in any of the other forms of *mexicanus* and therefore bears a superficial resemblance to the following species.

34. Myrmecocystus melliger Forel.

Several rather small workers taken from small crater nests at Pachuca either belong to the typical form of this species or to a very closely related variety.

35. Camponotus maculatus Fabricius subsp. picipes Olivier.

Many workers, males and winged females from Pachuca, San Miguel and Guerrero Mill, belonging to the common Mexican form of this subspecies which was redescribed many years ago by Forel (Bull. Soc. Vaud. Sc. Nat., XVI, 1879, p. 67). In the workers more or less of the thoracic dorsum, especially in front, is dark brown or blackish. The wings of the female are very long (15–16 mm.). Mr. Mann informs me that this ant is very common throughout the mountains of Hidalgo, nesting in the ground under stones, like other races of *maculatus*.

36. Camponotus maculatus subsp. picipes var. pudorosus new var.

Worker major.—Length 6.5–7 mm.

Differing from the typical *picipes* in its smaller size, in sculpture and coloration. The head is distinctly shining and much more finely and superficially shagreened, and the dorsal surface of both the head and thorax is paler in color. The base of the first gastric segment is yellow like the petiole and legs. The tibiæ of the latter are only a little darker than the femora and therefore much paler than in *picipes*. The pilosity is like that of the subspecific type.

Worker minor.—Length 4.5–5 mm.

Very similar to the worker major in color and sculpture, but the head is pale brown.

Female.—Length about 8.5 mm.

Body smaller, head more shining and more superficially sculptured than in the female *picipes*. Head, thoracic dorsum and the whole gaster black; epinotum, tibiæ and tarsi brown, pleuræ, femora and petiole yellow. Wings long (12.5 mm.), brownish yellow, with resin yellow veins and brown stigma.

Male.—Length 6.5 mm.

Differing from the male of the typical *picipes* only in its smaller size.

Described from numerous workers, a male and female, from nests under stones at Guerrero Mill.

37. Camponotus nitidus Norton var. nuperus new var.

Worker major.—Length 6–6.5 mm.

Head rather small, excluding the mandibles a little longer than broad, a little narrower in front than behind, with rounded sides, posterior border and posterior corners, convex above, with large, flattened eyes situated just behind the median transverse diameter of the head. Mandibles short, with 5 subequal teeth. Clypeus strongly carinate, its median portion as broad as long, with its anterior lobe very short, rounded and entire. Frontal area distinct, large and triangular. Frontal carinæ straight, strongly diverging. Frontal groove distinct, a little longer than the frontal carinæ. Antennal scapes slender, terete, slightly curved at the base and feebly and gradually thickened towards their tips, reaching fully one-third their length beyond the posterior border of the head. Thorax short, laterally compressed, especially behind, feebly and regularly arcuate above in profile, but the epinotum with its straight base forming a rather sharp ridge, shorter than the declivity and making with it nearly a right angle, as the declivity is nearly perpendicular and distinctly concave. Promesonotal and mesoëpinotal sutures pronounced. Petiole small, nearly as broad as the epinotum, but much lower, in profile cuneate, thick at the base, with convex anterior and flat posterior surface and the superior border sharp, entire and evenly rounded when seen from behind. Gaster of the usual shape; legs rather long.

Shining throughout; mandibles densely striato-punctate, smoother at the base; remainder of body smooth and very finely shagreened; clypeus and cheeks with large, shallow, sparse punctures.

Hairs golden yellow, erect, very sparse on the clypeus, front, vertex and gaster, absent on the thorax, petiole and appendages, except at the tips of the scapes and on the knees, where there are a few small hairs. Pubescence extremely fine and dilute, visible only on the pleuræ, epinotum and venter.

Yellow; gaster, posterior portion of head, front, tips of mandibles and clouds on the thoracic dorsum dark brown, posterior borders of gastric segments paler. Antennæ reddish brown. In some specimens the anterior portion

of the head is also brown but of a lighter tint than the portion behind the eyes.

Worker minor.—Length 5–5.5 mm.

Differing from the worker major only in its somewhat smaller size and the somewhat more elongate head, with less convex sides.

Female.—Length 6.5 mm.

Also very much like the worker major, but the head is distinctly longer and narrower and the cheeks are nearly straight. Scutellum with a few erect hairs. Wings very long (9 mm.), slightly infuscated, with brown veins and stigma.

Described from eleven workers and a single female taken at Guerrero Mill from a colony nesting in the trunk of a live oak. I have described this form at length because of the meagreness of Norton's original description of *nitidus* (Proc. Essex Inst. 1868, p. 2) which was based on three minor workers "from the mountains of Orizaba", where the species lives in "little companies under the bark of pines" (Amer. Natur. II, 1868, p. 60). It was more fully characterized by Forel (Bull. Soc. Vaud. Sc. Nat. XVI, 1879, p. 82). The specimens from Hidalgo evidently represent a distinct variety as their thorax is much paler than in the typical form, judging from Norton's description. Comparing them with a few cotypes of *C. montivagus* Forel taken by Stoll at Tecpam, Guatemala (7,000 ft.), I find that the latter is scarcely more than a variety of *nitidus* and not a distinct species as Forel maintained in Biol. Centr. Amer. Formicidæ, 1899–1900, p. 154.

38. Camponotus andrei Forel var. cholericus new var.

Worker major.—Length 6.5–7 mm.

Head more elongate than in the worker major of the typical form and with a deeper impression in the middle of the anterior border of the clypeus. Epinotum distinctly lower and more sloping. Hairs covering the body snow white instead of yellowish. In other respects like the typical form of the species.

Worker minor.—Length 4–4.5 mm.

Closely resembling the corresponding phase of the typical *andrei*, but the epinotum distinctly less angular in profile and more sloping, and the hairs on the body more brilliantly white as in the worker major.

Male.—Length 5 mm.

Resembling the minor worker in sculpture and pilosity, but the body entirely black, including the mandibles, antennal funiculi, tarsi and genitalia. Wings whitish hyaline, with dilute yellow veins and brown stigma.

Described from numerous workers and several males taken at Pachuca in the ground under stones in arid territory. The workers

have been compared with a couple of cotypes kindly given me by Prof. Forel.

39. Camponotus pellarius new species.

Worker major.—Length 7.5–8 mm.

Superficially resembling *C. chilensis* Spinola in color, sculpture and pilosity. Head, excluding the mandibles, as broad as long, broader behind than in front, with straight sides and very feebly concave posterior border. Mandibles rather small, convex, with 6 subequal teeth. Clypeus flattened, feebly carinate, with straight, entire anterior border. Frontal area distinct, broadly triangular. Frontal carinæ sigmoidal, diverging behind. Eyes moderately large and convex. Antennal scapes distinctly flattened at the base, enlarged at their tips, which extend somewhat beyond the posterior corners of the head. Thorax short, rapidly contracted posteriorly, pronotum flattened above, rather broad, with its sides in front distinctly and rather sharply marginate; in profile the outline of the thorax is evenly convex and rounded, the epinotum continuing the curve as this region is uniformly sloping and without distinct base and declivity. Promesonotal suture very distinct; mesoëpinotal suture obsolete, but indicated by an impression on the pleuræ. Petiole nearly as high as the epinotum, compressed anteroposteriorly, with slightly convex anterior and flat posterior surface and blunt, entire, broadly rounded superior border. Gaster rather large, flattened above. Legs moderately long.

Mandibles shining, sparsely punctate; anterior border of clypeus coarsely punctate, remainder of body, including the antennæ and legs opaque, densely punctate.

Hairs rather stout, blunt, snow-white, erect, abundant, moderately long on the body, fore coxæ and lower surfaces of the femora, much shorter and more appressed on the remainder of the legs. Anterior clypeal border with a row of golden yellow bristles. Pubescence on the head, thorax and scapes white, sparse and conspicuous, especially on the head; on the dorsal surface of the gaster brilliant golden yellow, and so long and dense as to cover the surface completely.

Whole body black, except the strigils of the fore tibiæ, which are deep red.

Worker minor.—Length 5–6.5 mm.

Differing from the major worker only in the smaller size and proportionally smaller and narrower head.

Described from numerous workers taken from a single colony, which was nesting in the crevice of a large rock at San Miguel. This species differs from *chilensis* in having the pronotum marginate on the sides, broader and more flattened above, the clypeus indistinctly instead of strongly carinate and in the pilosity, which is much more abundant, coarser and snow white. The golden pubescence on the gaster is also much more brilliant. That *pellarius* may eventually

turn out to be only a subspecies of *chilensis* seems to be indicated by a series of specimens in my collection taken by the Yale Expedition at Urubamba, Peru (9,500 ft.). These are intermediate between typical specimens of *chilensis* from Valparaiso in the breadth of the pronotum, and are much more pilose, with the pubescence on the gaster of a brilliant orange brown color.

THE NYMPH OF OPHIOGOMPHUS JOHANNUS NEEDHAM.

BY LEWIS B. WOODRUFF,

NEW YORK.

Of the seven recognized species of *Ophiogomphus* occurring in northeastern North America, the nymphs of the three following species are still undescribed: *O. anomalus,* Harvey, *O. mainensis,* Packard, and *O. johannus* Needham. As it has been my good fortune to observe the latter in the process of transformation on more than one occasion, the description of its nymph is now available. This species is by no means rare locally along the stony brooks in the hills of northwestern Connecticut, on the occasional sandy bottoms of which they apparently pass their larval existence. Toward the end of May they crawl out at such points, that is where the margin is sandy, there to await the splitting of the thoracic dorsum. This occurs on the ground at not more than three or four feet from the brook's edge, and often, if not invariably, several hours after sunrise.

The following description of the male nymph of this species is made from very perfect exuviæ taken at Litchfield, Conn., May 31, 1909, and preserved with the emerged imagos:

Total length 26 mm.; of abdomen 16 mm.; of hind femur 4.5 mm. Width of head 5 mm.; of abdomen at 5th segment 6.5 mm.

Legs, genæ, sides of antennæ and lateral margins of abdomen sparsely hairy.

Color olivaceous, mottled with yellowish and fuscous; wing cases variegated with pale and dark markings; femora and tibiæ with broad pale bands just before the apices; a quadrate yellowish spot on each lateral dorsum of abdominal segments two to nine inclusive, in each of which are four round